



UNITED STATES PATENT AND TRADEMARK OFFICE

9

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/509,754

09/30/2004

Kunio Kishimoto

43890-689

8298

20277 7590 10/11/2007
MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

MCCLELLAND, KIMBERLY KEIL

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

10/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/509,754

Applicant(s)

KISHIMOTO ET AL.

Examiner

Kimberly K. McClelland

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant is reminded they need to explicitly point out where support for all the newly claimed features comes from as required by MPEP 714.02 and 2163.06. See 37 CFR 1.111.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,357,395 to Lifshin et al. in view of U.S. Patent No. 7,017,265 to Tani et al.

4. With respect to claim 1, Lifshin et al. discloses a transfer lamination method, including heating and pressing the prepreg and the metal foil at a given place via a mold-releasing sheet by a heat and press means; removing the heat and the press applied by the heat and press means; cooling the prepreg and the metal foil, then peeling off the mold-releasing sheet, and heating and pressing an entire face of the prepreg and the metal foil (see Figure 2), wherein, the heating and pressing the prepreg and the metal foil at a given place are performed at a temperature not lower than a softening point of a resin impregnated into the prepreg (column 5, lines 25-32).

Art Unit: 1791

However, Lifshin et al. does not specifically disclose the temperature allows the resin to be kept in stage-B status.

5. Tani et al. discloses a method for manufacturing a multilayer wiring board, including during lamination, the temperature allows the resin to be kept in stage-B status (i.e. incomplete curing; column 14, lines 16-28), prior to a final curing step (column 14, lines 28-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the b-stage laminating step taught by Tani et al. with the transfer lamination method disclosed by Lifshin et al. The motivation would have been to adapt to the specific material requirements of the prepreg and allow the prepreg layer to be cured in a separate step (column 9, lines 25-35).

6. As to claim 3, Lifshin et al. discloses the laminating, in which the prepreg is used to be laminated, laminates a metal foil on the prepreg, laminates a board on the prepreg, or laminates a prepreg on the prepreg (See Figure 2).

7. As to claim 5, Lifshin et al. does not specifically disclose the temperature allows the resin to be kept in stage-B status.

8. Tani et al. discloses a method for manufacturing a multilayer wiring board, including the temperature allows the resin to be kept in stage-B status (i.e. incomplete curing; column 14, lines 16-28), prior to a final curing step (column 14, lines 28-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the b-stage laminating step taught by Tani et al. with the transfer lamination method disclosed by Lifshin et al. The motivation would have been to adapt

Art Unit: 1791

to the specific material requirements of the prepreg and allow the prepreg layer to be cured in a separate step (column 9, lines 25-35).

9. Claims 2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,672,226 to Deardorf. In view of U.S. Patent No. 4,357,395 to Lifshin et al. and U.S. Patent No. 7,017,265 to Tani et al.

10. With respect to claim 2, Deardorf discloses a process of forming multilayer circuit boards, including laminating a first prepreg on a first metal foil; heating and pressing the prepreg at a given place place for bonding the first prepreg and the first metal foil together; laminating a board having a circuit pattern on the first prepreg; heating and pressing the board at a given place for bonding the first prepreg and the board together; laminating a second prepreg on the board; heating and pressing the second prepreg at a given place for bonding the second prepreg and the board together; laminating a second metal foil on the second prepreg; heating and pressing the second metal foil at a given place for bonding the second metal foil and the second prepreg together to form a laminate; and heating and pressing an entire face of a the first prepreg, the first metal foil, the board, the second prepreg and the second foil to bond the laminate together (See Figures 2-3, column 1, lines 40-46, column 4, lines 10-30 and 50-52, column 5, lines 36-38). However, Deardorf does not specifically disclose wherein heating and pressing the prepreg and the metal foil at a given place includes heating and pressing via a mold-releasing sheet by a heat and press means; removing the heat and the press applied by the heat and press means; cooling the prepreg and the metal foil, then

peeling off the mold-releasing sheet ; or the temperature allows the resin to be kept in stage-B status.

11. Lifshin et al. discloses a transfer lamination method, including wherein heating and pressing the prepreg at a given place includes heating and pressing via a mold-releasing sheet by a heat and press means; removing the heat and the press applied by the heat and press means; cooling the prepreg, then peeling off the mold-releasing sheet (See Figure 2), wherein, the heating and pressing the prepreg and the metal foil at a given place are performed at a temperature not lower than a softening point of a resin impregnated into the prepreg (column 5, lines 25-32). Lifshin et al. also discloses the resulting copper clad product is subsequently used for the production of circuit boards (column 5, lines 45-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the transfer lamination method via the mold-releasing sheet of Lifshin et al. with subsequent method steps of forming a circuit board taught by Deardorf. The motivation would have been to effectively form a multilayer circuit board with superior qualities (column 5, lines 45-47).

12. Tani et al. discloses a method for manufacturing a multilayer wiring board, including during lamination, the temperature allows the resin to be kept in stage-B status (i.e. incomplete curing; column 14, lines 16-28), prior to a final curing step (column 14, lines 28-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the b-stage laminating step taught by Tani et al. with the transfer lamination method disclosed by Lifshin et al. The motivation

would have been to adapt to the specific material requirements of the prepreg and allow the prepreg layer to be cured in a separate step (column 9, lines 25-35).

13. As to claim 4, Deardorf discloses a process of forming multilayer circuit boards, including the board having a circuit pattern is a composite of thermosetting resin and one of woven fiber or non-woven fiber (column 5, lines 38-42).

14. As to claim 5, Deardorf discloses the prepreg has base material impregnated with resin (column 5, lines 38-42). However, Deardorf does not specifically disclose the temperature allows the resin to be kept in stage-B status.

15. Tani et al. discloses a method for manufacturing a multilayer wiring board, including the temperature allows the resin to be kept in stage-B status (i.e. incomplete curing; column 14, lines 16-28), prior to a final curing step (column 14, lines 28-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the b-stage laminating step taught by Tani et al. with the transfer lamination method disclosed by Deardorf. The motivation would have been to adapt to the specific material requirements of the prepreg and allow the prepreg layer to be cured in a separate step (column 9, lines 25-35).

16. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,357,395 to Lifshin et al. in view of U.S. Patent No. 7,017,265 to Tani et al. as applied to claims 1, 3, and 5 above, and further in view of 4,994,133 to Oizumi et al.

Art Unit: 1791

17. With respect to claim 7, Lifshin et al. does not specifically disclose the peeling off of the mold-releasing sheet peels off the sheet from one side of the sheet gradually and sequentially toward another side.

18. Oizumi et al. discloses a process for producing reinforced resin laminates, including the peeling off of the mold-releasing sheet (10) peels off the sheet from one end of the sheet toward another end (22/24; See Figure 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the gradual peeling step taught by Oizumi et al. in the laminating step taught by Lifshin et al. The motivation would have been to allow the release sheet to be reliably peeled and stored in roll form (22; See Figure 4).

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,672,226 to Deardorf. In view of U.S. Patent No. 4,357,395 to Lifshin et al. and U.S. Patent No. 7,017,265 to Tani et al. as applied to claims 2 and 4-5 above, and further in view of 4,994,133 to Oizumi et al.

20. With respect to claim 7, Deardorf does not specifically disclose the peeling off the mold-releasing sheet peels off the sheet from one side of the sheet gradually and sequentially toward another side.

21. Oizumi et al. discloses a process for producing reinforced resin laminates, including the peeling off of the mold-releasing sheet (10) peels off the sheet from one end of the sheet toward another end (22/24; See Figure 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the

Art Unit: 1791

gradual peeling step taught by Oizumi et al. in the laminating step taught by Deardorf.

The motivation would have been to allow the release sheet to be reliably peeled and stored in roll form (22; See Figure 4).

Response to Arguments

22. Applicant's arguments, see remarks, page 6, filed 7/27/07, with respect to the rejection(s) of claim(s) 6 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art. Applicant's remaining pertinent arguments are addressed below:

23. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., pressing at a maximum temperature of 100. °C for 3 seconds, and performing a cooling process during the laminating rather than at the end) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

24. As to applicant's argument that the current invention is performed sequentially, it is improper to read a specific order of steps into method claims where, as a matter of logic or grammar, the language of the method claims did not impose a specific order on the performance of the method steps, and the specification did not directly or implicitly require a particular order. Consequently, the current claims do not impose any order on

Art Unit: 1791

the current method steps, other than peeling the mold-releasing sheet after the cooling step in claim 1.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly K. McClelland whose telephone number is (571) 272-2372. The examiner can normally be reached on 8:00 a.m.-5 p.m. Mon-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KKM



PHILIP TUCKER
PRIMARY EXAMINER
SPE ART UNIT 1791